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10/574,207	01/03/2008	Henk Thoonen	US03 0360 US2	5531
65913	7590	04/04/2011	EXAMINER	
NXP, B.V.			WILLIAMS, ALEXANDER O	
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SAN JOSE, CA 95131				
ART UNIT	PAPER NUMBER			
2826				
NOTIFICATION DATE	DELIVERY MODE			
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[ip.department.us@nxp.com](mailto:ip.department.us@nxp.com)

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,207	<b>Applicant(s)</b> THOONEN, HENK
	<b>Examiner</b> Alexander O. Williams	<b>Art Unit</b> 2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_ is/are allowed.
- 6) Claim(s) 1-15 is/are rejected.
- 7) Claim(s) \_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 3/30/2006
- 4) Interview Summary (PTO-413) Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

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Serial Number: 10/574207 Attorney's Docket #: US030360US2

Filing Date: 1/3/2008;

Applicant: Henk thoon

Examiner: Alexander Williams

This application is an 371 of PCT/IB04/51952, filed 10/1/2004, which claims benefit of 60/507823, filed 10/1/2003.

Applicant's Pre-Amendment filed 3/30/2006 has been acknowledged.

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

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The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claims 1-15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear and confusing to what is meant by "an integrated circuit device assembled in a package **having a plurality of die including a first device and at least one additional device**, the IC comprising: a substrate a first device, having bonding pads including ground connections, **the first device die** attached to the substrate and **an additional device die** having bonding pads including ground connections, **the additional device die disposed on top of the first device die the additional device die attached to the first device die**, wherein the ground connections of the first device die are connected to the ground connections of the additional device." The phrases relating to "a first device" should be consistent throughout the claims. This first die is described as 'the first device die' in the claim. The language should be consistent throughout the claims. Also same for the phrase

"at least one additional device" where "the additional device die" is used also in the claims. It appears some punctuation is missing in the language of "**the additional device die disposed on top of the first device die the additional device die attached to the first device die.**" Punctuation is missing throughout the claim that should be corrected. For example, the phrase "a substrate a first device" should probably be --a substrate; the first device--.

Claims 4, 5 and 7 recites the limitation "the second device" in the claims. There is insufficient antecedent basis for this limitation in the claim.

Claim 9 recites the limitation "the second die" in the claim. There is insufficient antecedent basis for this limitation in the claim.

Claims 10 and 11 recites the limitation "the plurality of ground straps" in the claims. There is insufficient antecedent basis for this limitation in the claim.

In claim 12, it is unclear and confusing to what is meant by "A method for packaging an integrated circuit having a plurality of die including a first device and **at least one additional device**, and having a grounded substrate, the method comprising: attaching a first device onto a substrate; applying an insulating material on the first device; attaching **an additional device** onto the insulating material; and bonding the first device to **the additional device** at predetermined ground connections on the first device to predetermined ground connections on **the additional device**, and bonding the predetermined ground connections to ground nodes of the substrate." The phrases relating to "at least one additional device" should be consistent throughout the claims. Is "an additional device" a part of the "at least one additional device"? The language should be consistent throughout the claims.

In claim 13, the phrase “The method of claim 11” does not give antecedent basis for the phrase “The IC of claim 6”. This claim probably should depend on claim 12.

In claim 15, it is unclear and confusing to what is meant by “and attaching an additional device onto the conductive material, wherein the conductive material connects the first device at predetermined ground connections to predetermined ground connections on the additional device,” since this claim ends with a comma.

In claim 15, it is unclear and confusing to what is meant by “A method for packaging an integrated circuit having a plurality of die including a first device and **at least one additional device, the** method comprising; attaching a first device onto a substrate; applying an conductive material on the first device; and attaching **an additional device** onto the conductive material, wherein the conductive material connects the first device at predetermined ground connections to predetermined ground connections **on the additional device.**” The phrases relating to “at least one additional device” should be consistent throughout the claims. Is “an additional device” a part of the “at least one additional device”? The language should be consistent throughout the claims.

Any of claims 1-15 not specifically addressed above are rejected as being dependent on one or more of the claims which have been specifically objected to above.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:  
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-15, **insofar as they can be understood**, are rejected under 35 U.S.C. § 102(b) as being anticipated by Hikita et al. (U.S. Patent # 6,232,668 B1).

1. Hikita et al. (figures 1-3) specifically figure 3 show an integrated circuit device assembled in a package having a plurality of die including a first device **1** and at least one additional device **2**, the IC comprising: a substrate **14**, a first device, having bonding pads **12, PC, PS, PD** including ground connections, the first device die attached to the substrate and an additional device die having bonding pads including ground connections, the additional device die disposed on top of the first device die the additional device die attached to the first device die, wherein the ground connections of the first device

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die are connected to the ground connections of the additional device.

2. The IC of claim 1, Hikita et al. show wherein the ground connections of the first device are connected to the ground connections of the additional device with a conductive adhesive

3. The IC of claim 2, Hikita et al. show wherein the ground connections may be at voltages other than zero.

4. The IC of claim 2, Hikita et al. show further comprising, an insulating material placed in between the first device die and the additional device die, the insulating material having openings allowing for the connecting of ground connections therethrough between the first device and the second device.

5. The IC of claim 4, Hikita et al. show wherein, conductive adhesive is flowed through the openings in the insulating material connecting the ground connections between the first device and the second device.

6. The IC of claim 2, Hikita et al. further comprising: a package ground connection, wherein the package ground connection is connected the ground connections of the first device die and the additional device die at a plurality of predetermined locations.

7. The IC of claim 1, Hikita et al. show wherein, the first device die is of a first predetermined area and the second device die is of an additional predetermined area, the first

predetermined area being greater than the additional predetermined area.

8. The IC of claim 1, Hikita et al. show wherein, the first device die, having a core region surrounded by a pad ring, includes ground connections in at least one of the following locations: about the center of the first device die in the core region, on predetermined locations about the pad ring of the first device die; and the additional device die, having a core regions surrounded by a pad ring and ground connections on a predetermined underside location: includes ground connections in at least one of the following locations: about the center of the additional device die in the core region, on predetermined locations about the pad ring of the additional device die, at predetermined locations on the underside location of the additional device die.

9. The IC of claim 5, Hikita et al. show wherein, the ground connections on the predetermined locations of the pad ring of the first device die are coupled to the ground connections on the predetermined locations of the pad ring of the second die are coupled with a plurality of ground straps.

10. The IC of claim 6, Hikita et al. show wherein, the plurality of ground straps are comprised of a conductive material including at least one of the following: gold, silver, aluminum, copper, and alloys thereof.

11. The IC of claim 6, Hikita et al. show wherein the plurality of ground straps include at least one of the following: a

lattice structure, ground straps connecting grounds nearest one another.

12. Hikita et al. (figures 1-3) specifically figures 1 and 3 show a method for packaging an integrated circuit having a plurality of die including a first device **1** and at least one additional device **2**, and having a grounded substrate **21**, the method comprising: attaching a first device onto a substrate **14**; applying an insulating material **40** on the first device; attaching an additional device **2** onto the insulating material; and bonding the first device to the additional device at predetermined ground connections on the first device to predetermined ground connections on the additional device, and bonding the predetermined ground connections to ground nodes of the substrate.

13. The method of claim 11, Hikita et al. show wherein the bonding of the first device to the additional device at predetermined ground connections includes at least one of the following: using a conductive adhesive, a solder reflow, and a conductive interposer.

14. The method of claim 12, Hikita et al. show wherein the insulating material has predefined openings therein, the predefined openings corresponding to the predetermined ground connections on the first device and the predetermined ground connections on the additional device.

15. Hikita et al. (figures 1-3) specifically figure 3 show method for packaging an integrated circuit having a plurality of

die including a first device **1** and at least one additional device **2**, the method comprising; attaching a first device onto a substrate **14**; applying an conductive material **BC,S,BD** on the first device; and attaching an additional device onto the conductive material, wherein the conductive material connects the first device at predetermined ground connections to predetermined ground connections on the additional device.

The listed references are cited as of interest to this application, but not applied at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272 1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/29/2011  
/Alexander O Williams/  
Primary Examiner, Art Unit 2826